

Space News Roundup

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JSC Photo by Mark Sowa

The Advanced Life Support Team takes a moment outside the regenerable life support test chamber before saying good-bye to co-workers who are scheduled to spend more than 30 days sealed inside the chamber. Below: The four test members from left are, Katy Hurlbert, Doug Ming, John Lewis and Pat O'Rear.

Four JSC volunteers living off recycled air, water in chamber

Four JSC employees were recently sealed into a special, air-tight chamber to help further the studies of recyclable life support systems.

Doug Ming, test crew lead and space scientist; John Lewis, lead engineer, Pat O'Rear, lead electrical engineer and Katy Hurlbert an aerospace engineer and thermal systems expert, have been living inside the three-story, 20-foot diameter chamber 24 hours a day since June 12 and plan to remain there until July 12. Mechanical and chemical means are being used to recycle all air and water—including urine—for the four people in the chamber.

The current test follows a one-person test conducted in August 1995 which used a crop of wheat plants to recycle the test subject's

breathing air. Two additional tests are planned for 1997, a 60-day and 90-day test with the latter using both plants and physiochemical means for recycling air and water.



"This test expands on last year's investigation extensively—studying totally different technologies, physiochemical rather than biological—on a scale more than four times greater," said Don Henniger, chief scientist for regenerable life support systems. "Regerable life support is a critical enabling technology for the future of humans in space. Without it, trips to Mars or the Moon to establish bases are simply impossible. You just cannot carry all of the supplies needed for such long voyages."

Look for complete details of the test in next week's Space News Roundup.

Blaha prepares for Mir stay

Cosmonaut Researcher John Blaha spoke this week about his upcoming stay on the Mir Space Station as Shannon Lucid chalks up her 97th day on the Russian outpost.

In a news conference Wednesday at the Gagarin Cosmonaut Training Center in Star City, Russia, Blaha, with his Mir 22 crew mates Commander Gennady Manakov, Flight Engineer Pavel Vinogradov and French Cosmonaut Researcher Claudie Andre-Deschays, talked about the difficulties of an international crew.

"Naturally difficulties do exist in this program, but I am happy to participate," Blaha said. "This program will be a new page not only in space exploration but also in the interrelation between countries."

Manakov, Vinogradov and Andre-Deschays are scheduled to be launched in a Soyuz TM-24 capsule from the Baikonur Cosmodrome in Kazakhstan on Aug. 14 and will dock to the Mir on Aug. 16 to begin what is expected to be a six-month mission. Blaha will already be aboard Mir, having been transported to the space station aboard *Atlantis* on the STS-79 mission, which is tentatively scheduled for launch July 31. Blaha will spend

about four months on Mir, replacing Lucid, who has been part of the Mir 21 crew since March. The STS-79 crew—Commander Bill Readdy, Pilot Terry Wilcutt and Mission Specialists Tom Akers, Jay Apt and Carl Walz will return to Earth with Lucid around Aug. 9.

"All three parties involved in this program did a good job," said Gen. Yuri Glazkov, deputy chief of the GCTC. "This is a big accomplishment not only for the crew members but the training personnel also shared a good mutual understanding."



Blaha spent the majority of last week in medical examinations in preparation for this week's chief medical commission and certification for space flight. He also was involved in several baseline data collection sessions for the Skeletal Muscle Performance and Characteristics Experiment. Mir 22 Backup Jerry Linenger participated in the same medical exams and BDC sessions as Blaha. He and Blaha also completed a four-hour simulation in the Mir module.

Meanwhile, Lucid continues to conduct microgravity and life science experiments

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STS-78 marathon mission continues to run smoothly

By Karen Schmidt

Life and microgravity science continues onboard *Columbia* as the STS-78 crew conducts experiments on what could become the longest shuttle flight in history.

The focus of the marathon mission is to determine the effects of long-duration space flight on humans and materials. Mission managers are expected to decide later in the mission whether to extend STS-78 to 17 days, making it the longest shuttle mission to date.

"This mission probably captures better than any other in the past what the future space station operations are going to look like," said Payload Commander Susan Helms. "We've got a dual mission going on here. We've got a full-up microgravity flight, with furnaces and the Bubble Drop Particle Unit going around the clock. In addition, we've got the life science experiments. The fact that we're doing these microgravity experiments and life science experiments concurrently, and they're actually two missions combined into one, is what space station is going to be about."

"Space station isn't designed to just one objective; it's got many objectives. This is really the first flight where we've combined two major objectives to see if they're compatible. I think that when we get back and look at the data, we will see that we've been extremely successful in demonstrating that, and that bodes well for space station," Helms said.

Helms and her crew mates—Commander Tom Henricks, Pilot Kevin Kregel, Mission Specialists Rick Linnehan and Chuck Brady and Payload Specialists Jean-Jacques Favier and Bob Thirsk—completed their first week in orbit Thursday and continue to study the effects of microgravity on humans.

Some of this week's science investigations have centered around the crew. Physiology studies on muscles, sleep patterns, mental and physical functions will help determine the effects of space on station crew members.

Four crew members Brady, Linnehan, Favier and Helms—wore sensors for 24 hours to monitor muscle activity. Team members took turns on the Torque Velocity Dynamometer to exercise and record precise data on muscle strength, power and endurance. Crew members also measured lung performance

during rest and exercise to understand how gravity effects the pulmonary system.

Early this week, research focused on sleep patterns, and its impact of those patterns on crews' mental and physical functions.

"It's very important as missions get longer that we understand sleep in space and how it can become disrupted," said Principal Investigator Timothy Monk. "When we're thinking about manning a space station or long-duration missions to other planets, we really have to take seriously the fact that we're removing ourselves from a planet with a 24-hour rotation we all evolved on. We are now in a situation where our biological clock might be doing the wrong thing, interfering with our ability to sleep at night and performing well during the day."

Crew members wear belt packs that measure temperature and sleep caps to record brain waves, eye movements and muscle tone. Measurements are taken in 72-hour intervals during the mission.

"We are asking the astronauts to record their circadian rhythms and various body functions and chemicals in their urine, and their alertness," Monk said.

Other physiological experiments include the inner ear canal and otolith studies. Helms, Linnehan, Thirsk and Favier are wearing modified ski goggles that record eye and head movement as they track targets on the goggles' surface. Thirsk, Favier, Brady and Linnehan also donned electrodes and sensors early in the mission to study motion sickness. The Torso Rotation Experiment analyzes movements and may lead to practical ways to avoid motion sickness on Earth.

"To give you an example of some of the symptoms people can experience, the body experiences a major fluid shift immediately after ascent is complete, and this fluid shift can bring on a lot of strange symptoms such as fullness of the head, stuffy nose, stomach awareness and headaches," Helms said. "As it goes on people get used to it and they adapt to zero-g usually within hours. In our case everybody here adapted very quickly."

While the majority of their time was spent on life sciences, the crew conducted several material science experiments as well. Metals

Please see **MATERIALS**, Page 4



JSC Photo Mark Sowa

STS-79 Mission Specialist Jay Apt, right, and Suit Technician John Hopkins of Lockheed Martin help out IMAX producers during crew escape training.

JSC employees to receive NASA's biggest honors

NASA astronauts are among the employees who will receive the agency's highest honors in a ceremony to be held at 3 p.m. July 9 in Teague Auditorium.

This year's ceremony will honor individuals and groups nominated by center management and selected by the Incentive Awards Board at NASA Headquarters to receive NASA's highest honorary awards.

Each recipient of a NASA medal also will be presented with a framed certificate signed by NASA Administrator Daniel S. Goldin. Individuals selected to receive Group Achievement Awards on their team's behalf will receive a certificate at the ceremony. Certificates for individual participants of teams will be forwarded to the nominating organizations. NASA's Deputy Director John Dailey and JSC's Deputy Administrator James Wetherbee, will assist JSC Director George Abbey in presenting the awards.

The NASA Distinguished Service Medal will be presented to Kenneth Cameron, Bonnie Dunbar, Robert Gibson, Jerry Ross, William Shepherd, Norman Thagard, Kathryn

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JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990.

Lovin Feelings Concert: 7 p.m. Sept. 28 at the Summit. Tickets cost \$37.

Arena Football: Texas Terror vs Florida 7:30 p.m. July 13 at the Summit. Tickets cost \$11.50.

EAA Caribbean Getaway from New Orleans: Carnival Cruise Sept. 13-20, from \$539, \$200 deposit required, final payment due July 8.

EAA Mexico Copper Canyon Train Trip: Nov. 6-12, \$995 per person, \$200 deposit required, final payment due Sept. 6.

Splashtown: One day pass cost \$14.25.

Schlitterbahn: One day pass cost \$19.75 for adults, \$16.95 for children.

Astroworld: One day pass cost \$22.75, two day pass cost \$34.25.

Fiesta Texas: One day pass cost \$22.75, two day pass cost \$34.25.

Six Flags at Arlington: One day pass cost \$22.75, two day pass cost \$34.25.

Sea World: Adult tickets cost \$24.50, children (3-11) cost \$17.25.

Space Center Houston: Discount tickets, adult, \$8.75; children (4-11), \$7.10.

Movie discounts: General Cinema, \$4.75; AMC Theater, \$4.50; Sony Loew's Theater, \$4.75.

Stamps: Book of 20, \$6.40.

JSC history: *Suddenly, Tomorrow Came: A History of the Johnson Space Center.* Cost is \$11.

Metro tickets: Passes, books and single tickets available.

JSC

Gilruth Center News

Sign up policy: All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a NASA badge or yellow EAA dependent badge. Classes tend to fill up two weeks in advance. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

EAA badges: Dependents and spouses may apply for photo identification badges from 7 a.m.-9 p.m. Monday-Friday; and 8 a.m.-4 p.m. Saturdays. Dependents must be between 16 and 23 years old.

Golf instruction: Group Golf Clinics throughout spring and summer at Clear Lake Golf Club. Sign up at Gilruth.

Fitness Challenge: 1996 Fitness Challenge runs to Aug. 31. Employees are eligible to win \$100 gift certificates. For more information call Larry Wier at x30301.

Defensive driving: One day course is offered once a month. Cost is \$25. Interested employees should call the Gilruth.

Stamp club: Meets at 7 p.m. every 2nd and 4th Monday in Rm. 216.

Women's self defense: Martial Arts training for women only from 5-6 p.m. Tuesdays and Wednesdays. Cost is \$25 a month.

Weight safety: Required course for employees wishing to use the weight room is offered from 8-9:30 p.m. July 11. Pre-registration is required. Cost is \$5.

Exercise: Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays.

Aikido: Martial arts class meets from 6:15-7:15 p.m. Tuesday and Wednesday. Cost is \$25 per month. New classes begin first of each month.

Aerobics: Class meets from 5:15-6:15 p.m. Monday, Tuesday and Thursday. Ballroom dancing: Cost is \$60 per couple. For additional information call the Gilruth Center at x33345.

Country and Western dancing: Beginner class meets 7-8:30 p.m. Monday. Advance class meets 8:30-10 p.m. Monday. Cost is \$20 per couple.

Fitness program: Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information, call Larry Wier at x30301.

JSC

Swap Shop

Property

Woods: Wooded lot 90' x 135' in Taylor Lake Estates, near JSC, \$39.5k can finance. Don, x38039 or 333-1751.

Rent: League City, Pecan Forest, 3-2-2, FPL, very clean, no pets, \$850 mo. 554-6200.

Sale/Lease: League City, Bayridge subdivision, 3-2-2, cul-de-sac, new roof, \$55k obo. James, 286-1934.

Sale: University Trace condo, 1BDR + studio or 2nd bedroom, appliance, W/D, new carpet/paint, \$28.5k. 333-3925.

Rent: University Trace, 2-2, refrig, W/D conn, covered parking, \$550/mo. 480-1340.

Sale: Waterfront lot, .5 acs on Dickinson Bayou, bulkhead, wooded, \$65k obo. x31370 or 334-7412.

Lease: Wedgewood Village, Friendswood, 3-2-2, very nice lot, avail 8/1, shown by appt, \$800. 992-2825.

Sale: League City, Brittany Bay, 4-2-5-3D, tile, sec sys, workshop, CC school district, \$121k appraised. Carlos, x38879 or 332-1991.

Rent/Sale: Boat slip on Clear Lake w/roof & motorized boat hoist, access to water, \$7.5k. 474-4922.

Sale: Clear Lake, Oak Brook West, 2 story, 4-2-5-2, pool/jacuzzi, trees, marble entry, carpet allowance, warranty, \$121.9k. x38275 or 480-4634.

Sale: Nassau Bay, 3-2-2+, remodeled/updated, vaulted ceilings w/skylights, lg yard, FPL, fans, \$109.9k. Bryan, x30385 or 335-1559.

Sale: Heritage Park, 3-2-2, @1500 sq ft, walk to school, vinyl siding, sec sys, \$75.9k owner. 992-1657.

Sale: Heritage Park, 3-2-2, brick 2-story, owner, below appraised value, high \$70ks. 482-8845.

Sale: Camino South, 3-2-2, cul-de-sac, security, trees, new roof/carpet, etc, \$79.9k. 282-0596.

Sale: Clear Lake condo, 1-1, W/D, FPL, good cond, close to NASA. Ruben, x47119 or 486-0817.

Sale: Timbercove, on Taylor Lake, 4-2-2, FPL, CF, ~2400 sq ft, warr, RV parking, \$119.9k. 326-3915.

Sale/Lease: Condo, w/study, french doors, alarm, gates, on Space Center Blvd. 977-5763.

Lease: 3-1 home off Fuqua, 1100 sq ft, W/D conn, gas utilities, \$450 mo. Mike, x38169 or 482-8496.

Sale: Canyon Lake, 3-2, view of lake, vaulted ceilings, rock FPL, 1200' deck w/storage under house, 12 x 12 gazebo, waterfall, satellite dish, 1800 sq ft, \$124k owner. 210-899-3447 or 210-520-1777.

Rent: Galveston condo, furn, sleeps 6, Seawall Blvd & 61st ST, cable TV, pools, wknd/wkly/dly rates. Magdi Yassa, 333-4760 or 486-0788.

Rent: Arkansas cottage in the woods overlooking Blue Mt Lake & Mount Magazine, furn, FPL, \$50/daily or \$250 wkly. Corcoran, x47806 or 334-7531.

Rent: Galveston Beach house, Bay View, 3-2, sleeps 8, canal lot, all amenities, fisherman's paradise/wife's oasis, wknd/wkly rates, no pets. 488-4412.

Cars & Trucks

'93 Olds Cutlass Supreme, white, power, 51k mi, ex cond, \$10.5k. Jessica, x35305 or 484-3300.

'91 Chevy Suburban Silverado, low mileage, clean, \$21.5k. Carlos, x38875 or 332-1991.

'79 Toyota Cressida, grey w/burgundy inter, A/C, 6 cyl, AM/FM, auto, needs paint job, runs great. Shayne, x32446 or 532-4610.

'89 Ford Probe GT Turbo, 5 spd, loaded, alarm, phone capability, great cond, \$5k. Tiffany, x31888 or 643-2210.

'93 Honda Civic, blue, ex cond, AM/FM/cass, A/C,

5 spd, P/L & P/W, @ 25k mi, garage kept. Cynthia, x31040 or 695-5174.

'87 Plymouth Reliant LE, auto, A/C, cruise, 82k mi, new paint/tires/headliner, \$2,495. 332-9231.

'88 Mazda 626, 4 dr w/hatchback, 5 spd, blue, A/C, loaded, ex cond, 99k mi. \$4,995. x37130.

'86 Honda Accord LX, 5 spd, loaded, 138k, grey/grey, good cond, \$2.9k. 480-6743.

'92 Toyota Tercel DX, 2 dr, auto, tint, A/C, 34k mi, AM/FM/cass, \$7.5k obo. Julie, 623-4362 or 896-9504.

'88 Olds Cutlass SL, white w/red inter, 2 dr, auto, AM/FM/cass, P/S & P/W, P/L, tilt, ex cond, \$4,125 obo. Bobby, x30532 or 437-8947.

'91 Olds Cutlass Ciera, V6, 4 dr sedan, ex cond, 68k mi, A/C, AM/FM/cass, auto, power pack, cruise, \$6.4k obo. x31695 or 532-1089.

'90 Nissan 240SX Fastback, midnight blue, stick, new tires, A/C, AM/FM, moonroof, 59.5k mi, \$8.5k obo. x47014 or 486-7417.

'87 Dodge Caravan SE, 7 pass, V6, A/C, cass, P/W & P/L, ex cond, 95k mi, \$4,750. Dave, x32260 or Jim, 486-5052.

'83 Dodge van, dependable, custom interior, no A/C, good work van, \$1.5k. Ken, x31496 or 286-7583.

'96 Ford Probe GT, 5 spd, chrome wheels, laser red, 6k mi, \$16.2k obo. 334-3970.

'82 Pontiac J2000, good cond, good work car, \$800 obo. x47326 or 486-9673.

'85 Chevy Astro van, 6 cyl, 4 capt chairs & bench seat, A/C, new brakes/tires/shocks/muffler, auto, cruise, tilt, P/W & P/L, \$3k obo. Ray, x41010 or 333-2927.

'88 Chrysler LeBaron Town & Country, white, 4 dr, power, new tires/good cond, \$3k. 992-7507.

'79 Chevrolet El Camino, good to fair shape, \$2k obo. Jimmy, 337-5583.

'87 Toyota Celica, auto, liftback, lt brown, runs great. \$3k obo. Juan, 480-8101 x555 or 785-3710.

'83 Ford Econoline van, 4 spd, A/C, 2 capt chairs, 1 bench seat, good cond, \$2k. 488-6534.

'86 Honda Prelude Si, sunroof, auto, tint, alarm, new tires/paint, good cond, \$3k. Lisa, x40213 or 992-7302.

'87 Honda Accord, 4 dr LX, auto, A/C, power, \$4,750. 488-7771.

'93 Ford Ranger Supercab XLT, 4.0 6 cyl, 5 spd, towing pkg, 2-tone red/tan, ex cond, \$10k. David, x36027.

'90 Pontiac Sunbird convertible, loaded, white w/black top, great cond, \$5.9k. David, x36027.

'87 Astro van, good cond, \$2k. Gary, x37896 or 333-2751.

Boats & Planes

Windsurfer, F2 Sunset Stalom, 9', 105 liters, ex 1st shortboard, includes footstraps & fin, \$200 obo. Karen, 291-9020.

AMF "Puffer" sailboat, 12' w/spiniaker, rc, center-board, aluminum mast, comp rigging, rudder/tilter, blue canvas cov, galv "Dilly" trailer w/tire, \$300 obo. 488-1326.

Cycles

'93 Suzuki RM250, FMF Pipe, never raced, \$2.3k.

'92 Kawasaki ex500 "ninja" w/full fairings, muzzy exhaust pipe, new Dunlop 591's tires, ex cond, 8.5k mi, \$2.6k. Rick, 480-8245.

JSC

Dates & Data

Today

Cafeteria menu: Special: meat sauce and spaghetti. Total Health: baked potato. Entrees: rainbow trout, liver and onions, beef cannelloni, ham steak, fried cod fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: steamed broccoli, breaded okra, cut corn, black-eyed peas.

Monday

Cafeteria menu: Special: turkey and dressing. Total Health: herb flavored steamed pollock. Entrees: breaded veal cutlet, chicken fajitas, steamed pollock, beef, French dip sandwich. Soup: beef and barley. Vegetables: Brussels sprouts, mixed vegetables, egg plant casserole, winter blend vegetables.

Tuesday

ABWA meets: The American Business Women's Association, Clear Lake Area Chapter, will meet at 5:30 p.m. July 2 at the Bay Oaks Country Club. For more information call Nancy Hutchins at x34006.

Cafeteria menu: Special: pepper steak. Total Health: barbecue chicken. Entrees: baked lasagna, pork chop and fried rice, turkey a la king, baked chicken, fried cod fish, French dip sandwich. Soup: black bean and rice. Vegetables: breaded squash, steamed spinach, baby carrots, navy beans.

Wednesday

Toastmasters meet: The SpaceLand Toastmasters will meet at 7 a.m. July 3 at the House of Prayer Lutheran Church. For more information call Jeannette Kirinich x45752.

Astronomy seminar: The JSC Astronomy Seminar will meet at noon July 3 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For more information, call

Al Jackson at x35037.

Cafeteria menu: Special: Mexican dinner. Total Health: steamed pollock. Entrees: broccoli cheese quiche, spare ribs and sauerkraut, steamed fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: Spanish rice, pinto beans, peas, broccoli.

Thursday

Fourth of July: Most JSC offices will be closed for the Fourth of July holiday.

Friday

Reservations due: The Houston Forum will host a luncheon at 11:30 a.m. July 10 at the J. W. Marriot Hotel. Ed Weiler, pioneer for NASA's Hubble Telescope Project will discuss "Back to the Future - Exploring the Frontiers of Time and Space with the Hubble Telescope." Cost is \$25 for members, \$30 for guests. Reservations are due July 5. For more information, call 439-0466.

Cafeteria menu: Special: tuna noodle casserole. Total Health: broiled chicken breast. Entrees: deviled crabs, broiled pollock, liver and onions, broiled chicken with peach half, Reuben sandwich. Soup: seafood gumbo. Vegetables: Italian green beans, cauliflower au gratin, steamed rice, vegetable sticks.

July 10

MAES meets: The Society of Mexican American Engineers and Scientists will meet at 11:30 a.m. July 10 in the Bldg. 3 Cafeteria executive dining room. For more information call Michael Ruiz at x38169.

July 11

Airplane club meets: The Radio Control Airplane Club will meet at

7:30 p.m. July 11 at the Clear Lake Park Community Bldg. For more information call Bill Langdoc at x35970.

July 12

Astronomers meet: The JSC Astronomical Society will meet at 7:30 p.m. July 12 at the Lunar & Planetary Institute 3600 Bay Area Blvd. For more information call Chuck Shaw at x35416.

July 25

PMA workshop: The Performance Management Association, Houston chapter, will host a luncheon workshop on the Implementation of an Earned Value Management System at 11:15 a.m. July 25 at the Ramada Inn on NASA Road 1. The discussion will focus on "Cost, Schedule and Resources." Cost is \$13 and includes lunch. For details call Susan Widmer at x34299.

CLANG meets: The Clear Lake Area Network Group will meet at 6:30 p.m. July 25 at the Lunar and Planetary Institute 3600 Bay Area Blvd. Discussion will focus on "Norton Symanic Anti-Virus and PC Anywhere." For more information, call Bebe Kelly-Serrato at 282-1773.

Radio club meets: The JSC Amateur Radio Club will meet at noon July 27 in Bldg. 16 Rm. 253. For more information call Larry Dietrich at x39198.

Aug. 22

NASA open forum: NASA will conduct an open forum meeting to solicit responses concerning NASA's procurement policies and practices from 2-4 p.m. Aug. 22 at the Teague Auditorium. For details, call the JSC Industry Assistance Office at x34511.

Audio Visual & Computers

Panasonic KXP24111 24 -pin dot matrix printer, \$50; Compaq 286 Deskpro computer, monitor needs work, \$100. Dwight, 283-6929.

DX2-66 & DX4-100, 9Mb/850Mb mini-tower, 14" mon, \$695/\$775; Pentium 75/100/133/166, 8Mb/850Mb, 14" mon, all have Win 3.11 or Win95 + Office, other S/W, \$899/\$969/\$1,099/\$1,299. Don, 333-1751.

Yamaha stereo sys w/double door oak cabinet, \$375 obo. 996-0152.

AM/FM stereo console record player, ex cond, \$90. 332-9231.

Audio-technica phono cartridge, top of line, \$30. Ken, 337-7167.

Mac II ci 8/230 w/SuperMac 8 bit graphics card, SuperMac 19" monitor & Practical peripherals 14.4 external modem. \$750 obo. Jim, 244-5068.

Mac II ci computer, \$795. 488-7771.

MacPower PC 5215CD, 16Mb RAM, 1Gig HD, 4X CD, fax/modem, 15" multi-scan color mon, kybd, mouse, 603 chip at 75MHz, S/W, \$1,175 obo; MacPower Book 145b notebook computer, 8Mb RAM, 80Mb Hd, batteries & charger, \$700. 244-2444 or 488-4382.

Sony precision turntable, \$60; 24 CD auto changer, \$100; Audio concepts speakers, \$40; band equip travel crate w/caster, \$50 obo. Chris, 334-6898.

Dos Card for MacPower PC 6100 or Performa 6116; 486/66 w/Window pre-installed, \$300; Apple multi-scan 14" monitor w/built-in spkrs, \$250. 244-2444 or 488-4382.

Macintosh Performa 405, incl S/W pkg, 14" color monitor, kybd, mouse, mode, \$550; 730Mb ext HD for Mac, \$300; 14.4 ext modem for Mac, \$70. 326-5184.

Sony car Discman w/remote & ESP, \$100. Thang, x31464.

Musical Instruments

Piano, \$500 obo. 992-7507.

Sigma-Martin 6 string guitar w/case, \$500. Wendell, x39421 or 286-9892.

Hondo black electric guitar, ex cond, hardcase, amp & beginners book, \$150 obo. Rick, 480-8245.

Photography

Besseler B/W enlarger, lens, timer, trays, \$150; Pentax SLR, great for student, \$50; Hasselblad 500c, accessories, ex cond, \$1,250 firm. 480-8101 x559 or 996-8016.

Canon EOS Rebel X, 35x105 zoom lens, 2x multiplier lens, strap, soft case, guide, \$200. Dennis, x31409.

Pets & Livestock

Citron-Crested Cockatoo w/cage, \$1k. John, x40215.

Siberian Husky puppies, M/F, AKC reg, born 5/13, avail 6/24, \$275-\$300. x40213 or 992-7302.

Household

Couch, good velvet, 7.5', ex cond, \$225; secretary desk chair, vinyl castors, \$23; rocking chair, cushioned, good cond, \$55; refrigerator, 2 dr, top freezer, \$190. 332-9231.

On sz wood waterbed, daybed style, 6 drwrs, long hdbd/shelf storage cabinet underneath, \$250 obo. Jessica, x35305 or 484-3300.

2 matching sofas, ex cond, fabric, full-size, seafoam/mauve, \$600 obo. 283-9366 or 474-3073.

Toaster/broiler oven, large ex cond, clean, 20' x 14'x12', \$20. Jim, x38624 or 487-7132.

Qn sz sofa bed, off white, blue/mauve, \$300; matching club chair, \$85; white Jenny Lind baby crib w/mattress, \$65, all in good cond. 488-6265.

4 pcs leather sectional sofa, almond color, w/qn sz sleeper & recliner, great cond, \$750 obo; refridgerator, frost free, works great, \$75 obo; beige love seat, sleeper sofa, great cond, \$100. x37066 or 286-4255.

Duncan Phyfe mahogany dining suite w/6 chairs, china cabinet, \$1,325 obo. 996-0152.

Sofa, colonial style, cream/mauve/blue, \$250. 480-8101 x559 or 996-8016.

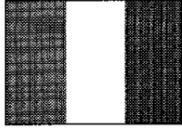
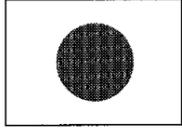
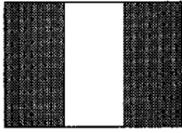
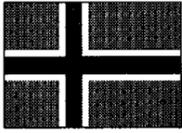
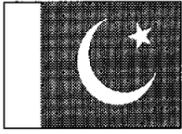
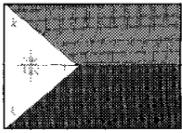
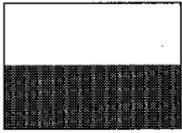
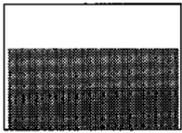
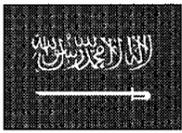
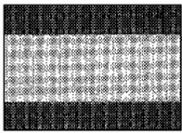
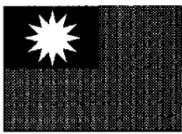
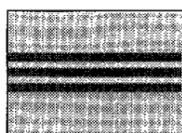
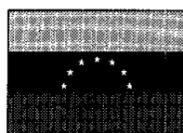
Whirlpool hvy duty W/D, \$200. x38173 or 480-8220.

Qn sz waterbed, 6 drwrs base, bookcase hdbd, matt/liner/heatr, sheets, \$100; light dresser w/dk brown accents, mirror, \$75. x34842 or 474-7982.

Kg sz waterbed w/semi-motion matt, dk pine w/bookcase hdbd & new padded side rails, \$100; dk pine triple dresser w/lg mirror, \$50. Sylvia, x37703 or 538-1627.

Kg sz semi-motionless waterbed w/frame & heater, disassembled, \$300 obo. 337-5583.

Regina HouseKeeper Plus upright vacuum, 8.5 Amps, all attachments, ex cond, \$70 obo. 280-0185.</



American Heritage Week

For the third year JSC celebrates its diverse culture

Employees celebrated their heritage this month in a week long celebration that highlighted JSC's cultural, ethnic and racial diversity. Employees were given the opportunity to expand their knowledge of the rich heritage represented within the JSC team.

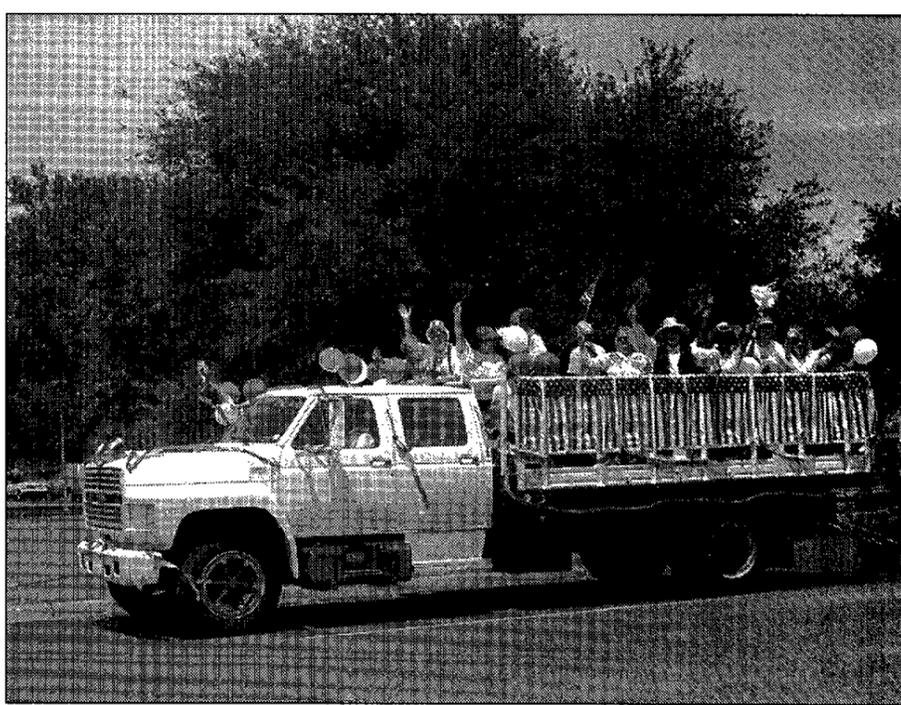
This year's celebration of American Heritage was celebrated for the entire week instead of just one day and marks the third year JSC has held the event.

From left to right, top to bottom;

1) JSC employees drive around the center in a decorated float heralding the grand finale celebration;

2) Czech dancers Donna and Gunter Merkle entertain employees at the Gilruth Center;

3) JSC employees, lead by Andy Sylvester of the Automation, Robotics and Simulation Division, get together to sing a variety of songs for the lunch time



crowd in the Bldg. 3 cafeteria;

4) The Young Performing Stars of Texas entertain employees during the grand finale of American Heritage Week;

5) Priyanka Patel performs a traditional Indian dance;

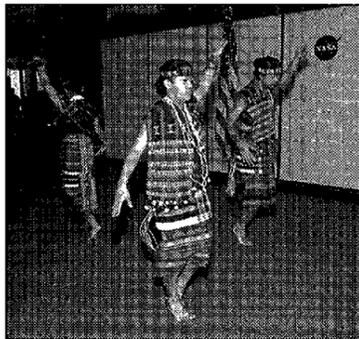
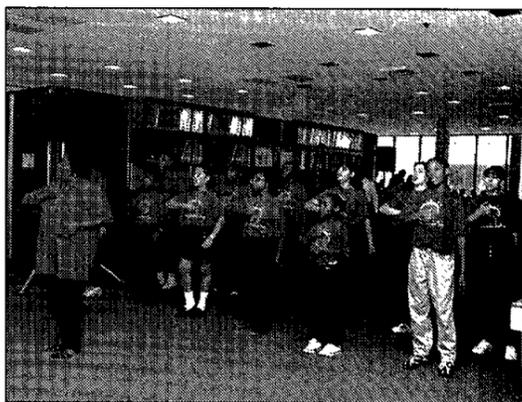
6) JSC Director George Abbey welcomes Houston Oiler Rodney Thomas to the cultural celebration at the Gilruth Center;

7) The Aldine Y.O.U.T.H. Group sings and signs music before the lunch crowd in the Bldg. 3 cafeteria;

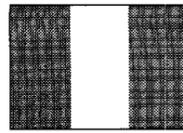
8) Astronaut Scott Altman signs autographs during the grand finale celebration at the Gilruth Center;

9) The Houston Philippine Group perform tradition dances during American Heritage Week;

10) Native American Jerry Elliot, right, opens the grand finale celebration with a song and Dale Anderson sang the Star Spangled Banner. □



JSC photo by Mark Sowa, Robert Markowitz and Benny Benavides



JSC employee earns council's Technical Person of Year award

A JSC employee was the recipient of the Clear Lake Council's Technical Person of the Year award, presented at its 13th annual Awards Banquet on June 14 at the JSC Gilruth Recreational Center.

JSC's Eric Christiansen, manager of the Hypervelocity Impact Analysis Facility in the Earth Science and Solar System Exploration Division, earned Technical Person of the Year honors. The other nominee was R. Peter Bonasso of Metrica Inc.

The Educator of the Year award was presented to Robert Nevels of Texas A&M University. Nominees included Dave Criswell of the University of Houston and A. Glenn Houston of the University of Houston.

The Technical Administrator of the Year recipient was Frank Musil of Boeing Defense and Space Group. Also nominated were Nancy Robertson, chief of JSC's Public Affairs Education and Information Services Branch and Kenneth Reightier of Lockheed Martin.

Astronaut Franklin Chang-Diaz discussed his work on an advanced propulsion system and related how his interest in NASA space activities as a youth led him to his present status as an astronaut.

The American Institute of Aeronautics and Astronautics and the Institute of Electrical Electronic Engineering, two of the member societies, also made presentations to Pasadena ISD Science Fair students and teachers that supported them in recognition

of their achievements throughout the school year. The local AIAA and IEEE supported their activities during the school year and presented the awards to the students.

The council, which was formed in 1980 and has a membership of 14 local technical societies, provides a monthly calendar of member society meetings and supports Spaceweek activities, video conferences and other societies activities. The council also is planning to build an engineering facility.

Life sciences database gets new upgrade

Internet users can now access the Master Catalog of the NASA Life Sciences Data Archive on the World Wide Web segment of the Internet.

The archive, which represents the first detailed and easily accessible database of research results of the NASA Life Sciences Division, provides a wealth of scientific knowledge developed from 30 years of space-based research into the effects of microgravity on living systems, including the human body.

NASA developed the LSDA, following a detailed evaluation process, to provide better access to data, general information and results of NASA-sponsored life sciences investigations. The archive was first introduced in June 1995 and initially contained overview information on recent life sciences shuttle missions. With today's move, the archive has now been upgraded to include the Master Catalog, containing detailed descriptions of experiments, missions, hardware, and personnel.

This information will allow researchers to plan future experiments and conduct retrospective data analysis. It will be equally valuable to students and educators in preparing research papers or class lessons and in proposing student experiments to NASA.

The LSDA is located on the World Wide Web at the National Space Science Data Center and includes links to a number of other related Life Sciences Web sites. Internet users can access the LSDA at: <http://nssdc.gsfc.nasa.gov/life>

MCC extends STS-78 viewing

The Mission Control Center has extended viewing room hours for JSC and contractor badged employees and their families during the STS-78 mission.

Employees will now be allowed to visit the MCC from 1-5 p.m. Saturday, 5-7 p.m. Monday, 11:30 a.m. - 2:30 p.m. Wednesday and 5-7 p.m. Friday. Employees must wear their badges and escort family members through the lobby of Bldg. 30 South. Because of the dynamic nature of shuttle missions, viewing hours may be changed.

For the latest information, call the Employee Information Service at x36765.



The Mir 22 crew check out food that will be available during their stay on the Russian outpost. From left are Flight Engineer Pavel Vinogradov, Commander Gennady Manakov, American Cosmonaut Researcher John Blaha and French Cosmonaut Researcher Claudie Andre-Deschays.

Lucid focuses on Earth observations

(Continued from Page 1)

along with Earth observations.

The crew's work this week involved operation of the Queen's University Experiment in Liquid Diffusion payload. QUELD is a fixed furnace facility which provides scientists with a way of measuring the diffusion coefficients in some metallic binary systems as well as glasses and semiconductor materials. Sample processing began Tuesday with work going faster than scientists predicted.

Earth observations include regions in Russia, western Siberia, the southern Amazon Basin and the central Andes mountains.

Last week, air sampling activities were done in the Specter and Core modules with the Solid Sorbent Air Sampler and the Grab Sample Container devices. SSAS is designed to sample air quality over a long period—24 hours—as it looks for particular components in the air.

Material science going well on STS-78

(Continued from Page 1)

are being tested in the Advanced Gradient Heating Facility to better understand the solidification process that may lead to improvements of materials processing on Earth. Fluid experiments are being conducted in the Bubble Drop and Particle Unit. While the unit experienced problems early in the week, limited operations are continuing with troubleshooting planned for later in the mission.

Henricks and Kregel tested the Voice Command System that will allow space travelers to command the onboard television system while performing other tasks. Henricks also

The GSC is used to get a quick "snap shot" type reading of air quality.

The crew also successfully transferred data from the Tissue Equivalent Proportional Counter, a radiation monitoring experiment. Periodically, data from TEPC has to be transferred to an archival system. In this case the archival system is a laptop computer. TEPC data will be returned to Earth later this year.

In Star City, Linenger and fellow astronaut Mike Foale completed a four hour EVA training session in the hydrolab. Some of Foale's other activities this week included lectures on the construction and components of the Kristall module, the control panels of the Kvant-2 module and the Kvant's life support system. Astronaut Jim Voss continued his study of the Russian language and received lectures on the emergency provisions onboard the Soyuz transport vehicle.

participated in a video conference with Mission Control. This system could ultimately provide two-way communication for the International Space Station.

For the first time, scientists all over the world are monitoring their experiments from their own laboratories with links to Spacelab Mission Operations Control Center at NASA's Marshall Space Flight Center.

Life and Microgravity Mission Manager Mark Boudreaux said the international mission is, "the key ingredient to take us into the next era of space exploration—the International Space Station."

(Continued from Page 1)

JSC employees to be honored next month in Teague

(Continued from Page 1)

Thornton, David Walker and James Wetherbee.

The NASA Outstanding Leadership Medal will go to Kenneth Bowersox, Gary Coultas, Wilbert Ellis, Bernard Harris, Terence Henricks, Tamara Jernigan, Stephen Oswald, John Rummel and James Voss.

The NASA Exceptional Service Medal will be given to Gloria Araiza Young, Ellen Baker, Albert Behrend, David Birmingham, Kenneth Cockrell, Jesse Contreras, Nancy Currie, Izella Dornell, Marilyn Dotson, Michael Foale, James Gauthier, Margaret Guerra, James Halsell, David Hamilton, Gregory Harbaugh, William Harris, Gail Horiuchi, Bobbie Jenkins, Robert Kelso, Kathleen Leary, Thomas Logan, Linda Massey, William McArthur, James Newman, Graydon Owens, James

Powell, Charles Precourt, Donald Preveatt, William Prueett, William Readdy, Michael Richardson, Gene Ricks, George Sanders, Charles Stegemoeller, Donald Thomas, David Thompson, Donald Tillian, Janice Voss, Vincent Watkins and Leesa Wolf.

The NASA Exceptional Achievement Medal will be presented to Pamela Adams, Joseph Boze, Jill Brigham, Lewis Casey, John Curry, Richard Dinkel, Glenn Ecord, Carol Evans, Tommy Holloway, Gregory Lange, Larry Li, John Muratore, Steven Nagel, Brett Parrish, Karl Pohl, Nancy Smith, John Starnes and Jack Woods.

The NASA Equal Employment Opportunity Medal will go to Bernard Harris.

The NASA Exceptional Bravery Medal will go to Sharon Daley

Ronald Howard and Bernard Mundine of Johnson Engineering Corp.

The NASA Public Service Medal will go to James Heldt, Robert Mahoney, Joseph Williams and Jon Olansen of Rockwell Space Operations Co., Gerald Lefebvre of Lockheed Martin Space Information Systems and Hiroshi Takeda of the Mineralogical Institute, University of Tokyo, Japan.

The NASA Group Achievement Award will be awarded to Day-of-Launch I-Load Update, Version Two Certification Team, Flight Software Reconfiguration Transition Team, Global Positioning System Receiver Solid-State Data Recorder Team, Hypergolic, Cryogenic, and Solid Propellant Test Team, Joint Safety Assurance Working Group, Lighting, Camera, and Target Test Team, MIR-3 Simplified Aid for Extravehic-

ular Activity Rescue Development Team, Phase 1A Shuttle/Mir Science Program, Space Shuttle Primary Flight Software Process Team, Space Shuttle Program Payload Integration Team, Space Shuttle Program Requirements Review Team, Spacelab-Mir Mission Management Team, STS-34 Training Team, Trajectory Control Sensor Development Team, White Sands Test Facility ISO 9001 Implementation Leadership Team, Zero Base Review Team and Zero-Gravity Aircraft Modification Team.

Following the ceremony, a reception will be held in the lobby of the auditorium for award recipients and their guests. Employees are encouraged to attend as workloads permit. For more information about the ceremony, contact Helen Harris at extension x38413.

NASA plans third procurement forum

NASA will conduct its third annual open forum meeting from 2-4 p.m. Aug. 22 at Teague Auditorium to solicit questions, views and opinions of interested persons or firms concerning NASA's procurement policies and practices.

The purpose of the meeting is to have an open discussion between NASA Associate Administrator for Procurement Deidre Lee and representatives from industry and the public.

The briefing will primarily target private industry, but will be open to any who would like to attend. Doors will open at 1:30 p.m. and reservations are not required. The two-hour briefing will be followed by a question and answer session. In addition to the general discussion, NASA will invite comments or questions relative to its ongoing procurement initiatives, some of which include cost control, performance-based contracting, source selection, change order reduction and process change.

Questions for the associate administrator will be accepted at the meeting and should not be submitted in advance. Position papers are not being solicited.

For further information you may contact the JSC Industry Assistance Office at x34511.

Hubble scientist Weiler at Houston Forum luncheon

One of NASA's top astrophysicists will present a tour of the universe as seen through the Hubble Space Telescope next month in downtown Houston.

The Houston Forum presentation featuring Ed Weiler, chief of ultraviolet/visible and gravitational astrophysics at NASA Headquarters, will be from noon-1:30 p.m. July 10 at the J. W. Marriott Hotel.

As project scientist for the Hubble, Weiler is the chief scientific spokesman for the program and will shed light on great questions of the universe and discuss new findings unveiled by the Hubble telescope. Weiler has worked on the Hubble project since its inception 18 years ago.

Tickets for this luncheon are \$25 for members, \$30 for guests and \$275 for a table of 10. Reservations are due by July 5. For more information regarding this event, call Christopher Ligi at 439-0466.

JSC shares safety course with contractor supervisors

For the first time, JSC is offering its Senior Manager's Safety Course to all first line contractor supervisors and managers.

The course brings mishap prevention and the critical role of line management in safety programs into focus. Incidents unique to NASA, as well as examples from the private sector, are included in the course.

Two sessions are being offered; one on July 16-17 and the other on July 17-18. Both sessions will be held at the University of Houston Clear Lake.

Please contact Margie Williams of the JSC Safety Learning Center at x36369 to register for one of the sessions. Any questions about the course may be directed to Tracy Ferguson at x33548.

Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

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